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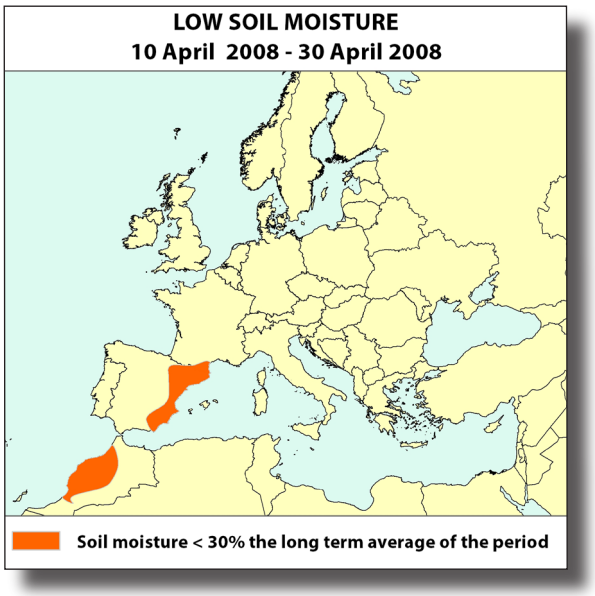
MARS AGROMETEOROLOGICAL Crop Monitoring in Europe

11th April to 30th April 2008

Vol. 16, No 2

Promising yield expectations for Europe.

Eastern Spain and Morocco under dry conditions



1. Agrometeorological overview

In general, positive conditions. Progressive increase of temperatures but with occasional frost events in central and northern Europe. Beneficial rain in Iberian peninsula. Rain spread over the continent, except Mediterranean coastal areas.

1.1. Temperatures and evapotranspiration

Initially cooler in western Europe, followed by a quite warmer dekad; the opposite in eastern Europe. Again large thermal fluctuations with anomalous high temperatures and sporadic frost events.

Since the end of the first week of April, the influence of the Azorean anticyclone became progressively stronger over the European continent. Consequently, the temperatures increased. Over the whole continent, a surplus of cumulated active temperatures, as compared with the seasonal average, was recorded. The largest values occurred (+ 20/30 %) in central Italy, the Balkans, Greece, Turkey, the Maghreb and southern Spain

MARS STAT yield forecasts at EU27

CROPS	European Union 27 Yield (t/ha)				
	2007	2008	Average 5 years	% 2008/07	% 2008/ Average
TOTAL CEREALS	4.5	**4.9**	*4.7*	+8.7	+4.4
Soft wheat	5.1	**5.6**	5.4	+10.5	+4.5
Durum wheat	2.8	**2.9**	*2.7*	+1.5	+5.1
Total wheat	4.8	**5.3**	*5.0*	+9.2	+5.0
Spring barley	3.8	**3.8**	*3.7*	-0.5	+3.0
Winter barley	4.8	**5.2**	*5.0*	+9.0	+5.7
Total barley	4.2	**4.4**	*4.2*	+3.7	+4.4
Grain maize	5.7	**7.3**	*6.3*	+27.9	+16.1
Other cereals [1]	3.1	**3.3**	*3.2*	+8.4	+5.2
Rape seed	2.8	**2.9**	3.0	+3.7	-3.1

Yield figures are rounded to 100 kg

[1] Sorghum, rye, maslin, oats, triticale, mixed grain other than maslin, millet, buckwheat

Sources:

2007 yields come from EUROSTAT CRONOS

2008 yields come from MARS CROP YIELD FORECASTING SYSTEM

Contents

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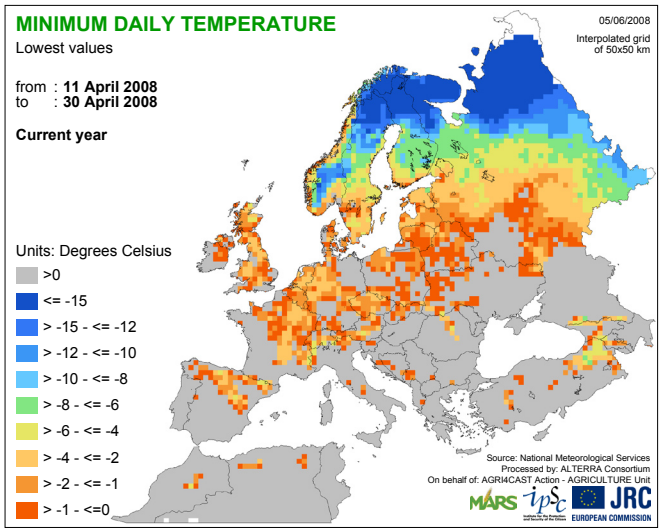
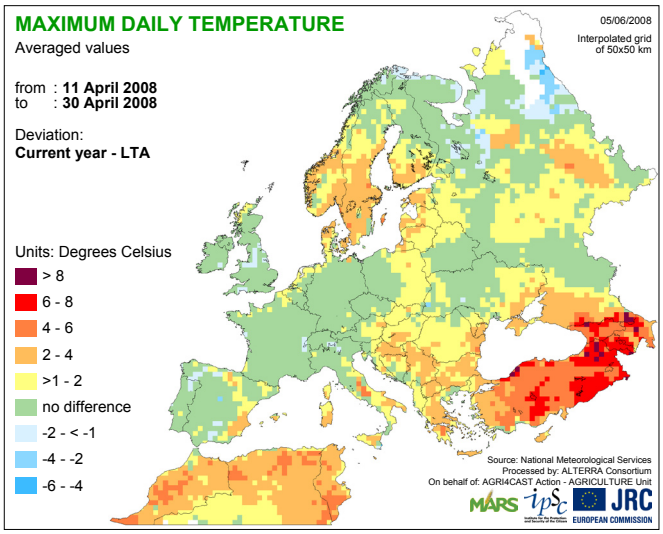
EC publication from JRC/IPSC/Agriculture/AGRI4CAST: mars-stat@jrc.it
MARS bulletin: http://mars.jrc.it/marsstat/bulletins/2008.htm
MARS agrometeorological database: http://www.marsop.info

ipsc Institute for the Protection and Security of the Citizen

In the **second dekad of April**, in all the areas eastward of the line connecting Algeria to the Baltic countries, on average 30–40° GDD (growing degree days) accumulated more than expected (the maximum surplus occurred in the Black Sea basin with 50–60° GDD), whilst westward of this line, and in particular in the Iberian peninsula and the British Isles, light deficits were recorded. These surpluses were mainly because of the higher than seasonal maximum daily values: on average 6–8 °C above the long-term average (LTA). However, values above 30 °C occurred only locally in Algeria, Tunisia, Greece (Sterea Ellada, Thessalia) and Turkey. Occasional frost events with relative severity (– 3°/– 4 °C) occurred in the Czech Republic (Severovychod), Poland (Dolnoslaskie), Spain (Castile-Leon, Castile-La Mancha), the UK (Yorkshire) and Germany (North Rhine-Westphalia, Niedersachsen). Locally, these events could have affected crops at very sensitive stages of development, for example rapeseed at flowering.

In the **last dekad of April**, the Azorean anticyclone entered deeply into the continent (on 26 April the centre even reached eastern Europe) determining a warm African air flux over the Iberian peninsula, where the maximum daily values reached 30 °C (Andalusia, Extremadura, Alentejo), and along the Atlantic coasts. In particular, in Scandinavia unseasonally high temperatures (even 8 °C above LTA) were recorded. Frost occurred only in the extreme northern countries (Sweden, Finland, Poland, the Baltic countries) or in mountainous locations.





1.2. Rainfall and climatic water balance

Quite abundant rain over the majority of the EU area; rain scarce or absent only in the Maghreb, south-eastern Spain, Sicily, Apulia, Greece and Turkey. Positive water supply in Iberian peninsula.

As a whole, during the considered period, over most of Europe the cumulated rain values were above (> + 30 %), and in some case even largely above (> + 100 %), the seasonal averages. Only the Mediterranean basin received less water than expected. The largest surplus (> + 150 % as compared with LTA) was recorded in central and north Portugal, south-west Spain, north-east Italy, east and south Germany, west Poland, north Romania, Ukraine and Russia. These areas received on average from 70 to 100 mm more than seasonal values. On the contrary, the areas in the southern latitude received only a few millimetres of rain (10–15 mm) which in absolute term is estimable to 30–50 mm (equivalent to – 70/– 90 %). Despite the apparent modest deficit values, considering the advanced stages of development of the winter crops in these areas (flowering/grain filling), the water supplies normally recorded in this season are very important in maintaining the potential performance of the cultivated rainfed crops. Therefore, the rain forecast in the following days could avoid early water stress conditions. In general, the rains were more concentrated during the second dekad of April and quite spread over the continent. On the contrary, during the last dekad of the month, the rain was more abundant in the British Isles, Normandy, around the Alpine regions and Ukraine. Intense showers were recorded locally in Slovenia (125 mm on 12 April), Morocco (87 mm on 17 April in the centre-north region) and Romania (70 mm on 22 April in the north-east).

Abstract

The 2nd 2008 printed MARS Bulletin (Vol. 16, No 2) covers meteorological analysis and crop yield forecasts for the period 11 April to 30 April 2008.

Previous related analysis available:

—Climatic updates, 20/12/2007 to 24/02/2008, (CU2008/1)

—Complete Bulletin, 11/11/2007 to 10/04/2008 (Vol. 16, No 1)

Next printed issue

Vol. 16, No 3: 1 May - 31 May 2008 analysis and forecasts.

Contributions

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http://www.marsop.info

MARS stands for Monitoring Agriculture with Remote Sensing.

Technical note:

The long-term average used within this bulletin as a reference is based on an archive of data covering 1975–2007.

The CNDVI is an unmixed normalised vegetation index on the base of Corine land cover 2000 mainly for arable land or grassland.

2. Campaign analysis at country level

2.1. EU-27

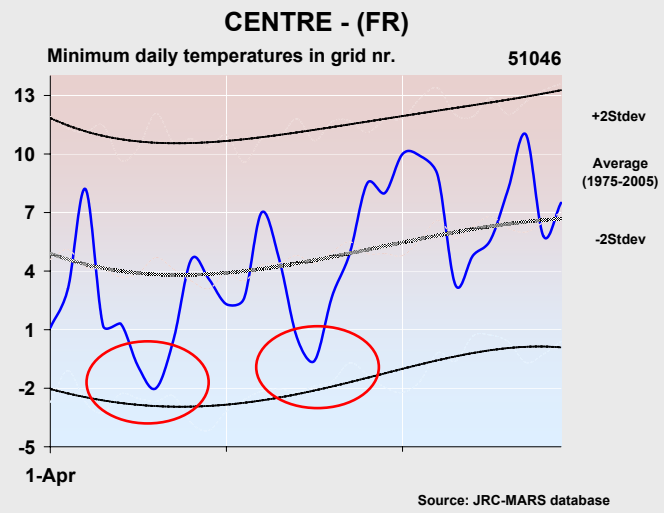
France: Generally wet conditions except in Languedoc Roussillon

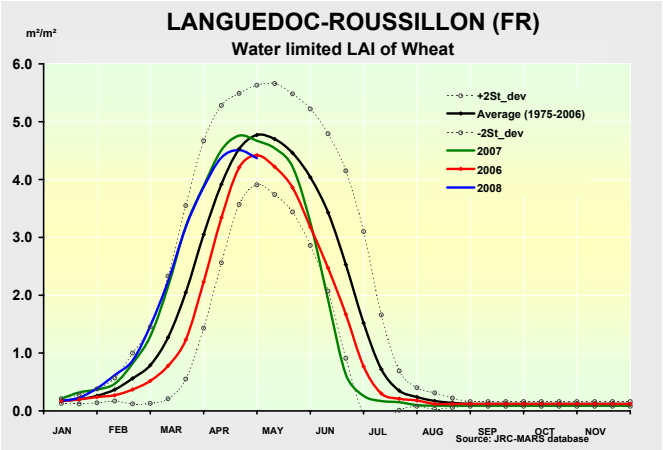
The climatic conditions were favourable for normal crop development with a good yield potential. Soft wheat is forecast at 7.3 t/ha: higher than the five-year average (+ 4.7 %) and higher than last year (+ 13.1 %). The durum-wheat yield is slightly progressing with 4.8 t/ha (+ 11.1 % on 2007, + 3.7 % average). The winter barley yield is still foreseen with 6.5 t/ha (+ 14.0 % on 2007, + 3.4 % average). The rapeseed yield keeps its potential with 3.2 t/ha close to the average (– 0.8 %) and better than 2007 (+ 11.1 %).

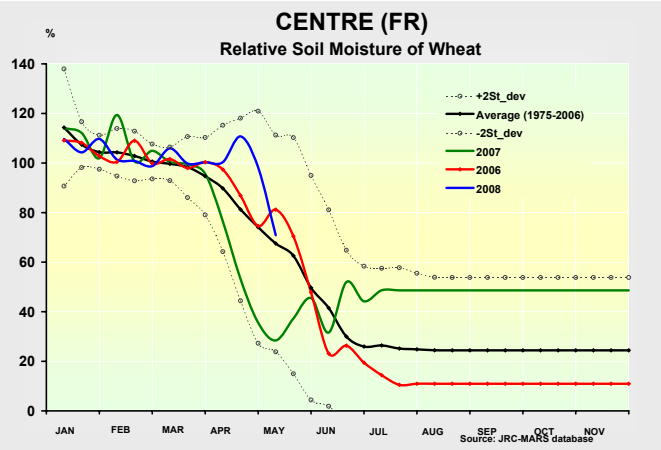
The temperatures continued to increase at a higher level than normal, particularly in the second part of April and boosted crop development at a slightly advance stage. Rainfall was quite abundant, much higher (> 30 % LTA) than the seasonal level for most of the territory; only some parts in Languedoc Roussillon remained with lower precipitations, particularly at the end of the month.

Winter rapeseed reached an advance flowering stage in April for the whole territory. The abundant precipitation in April could have interfered with the flowering in some limited areas in south-western and eastern Europe. A few days below zero could have also reduced locally in the eastern region rapeseed fertility at flowering. Winter wheat benefited from good climatic conditions and was also slightly anticipated at the grain filling phase in the southern region and heading for the remaining part of the country. After a dry spell most of the Mediterranean zone was relieved by good rainfalls that could not, however, fully replenish the soil moisture in Languedoc Roussillon. In this area, further precipitations are required to maintain the crop potential, particularly for hard wheat.

Spring crops were growing under normal conditions. Early summer crops' sowing could have been hindered by the wet conditions.







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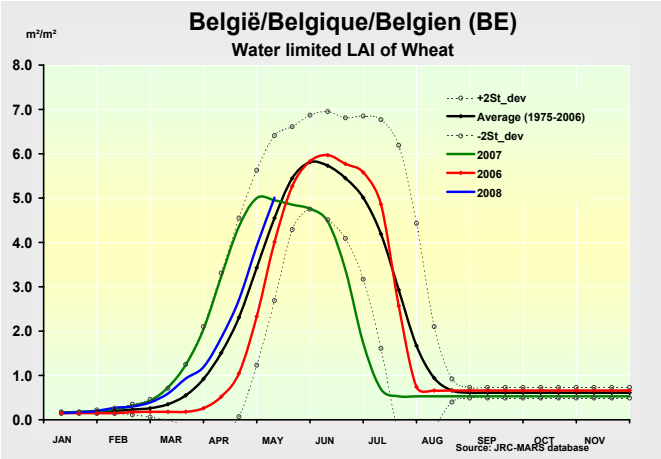
Belgium, the Netherlands and Luxembourg: Soil moisture in the Netherlands decreases

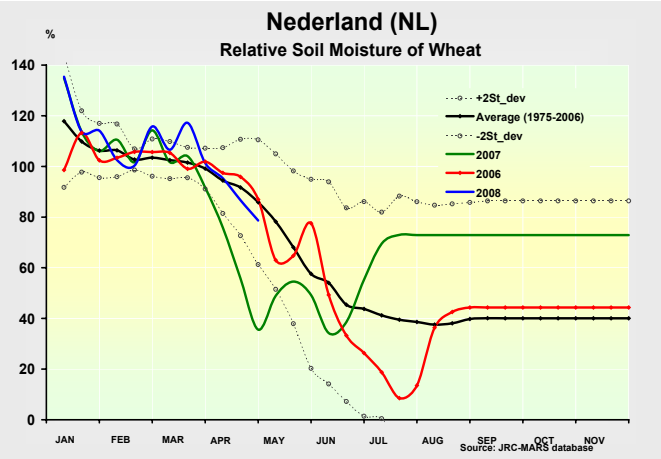
The climatic conditions still foresee much better yields than last year and slightly better to equivalent to the five-year average. Soft wheat is still forecast at 8.6 t/ha in Belgium, 8.7 t/ha in the Netherlands and 6.1 t/ha in Luxembourg. They are all higher than last year's yield respectively from + 10 %, + 20 % to + 9 % and compared with the average + 2.8 %, + 3.2 %, – 0.1 %. In Belgium, winter barley is forecast at 8.1 t/ha (+ 1.3 % 2007, + 3.5 % average).

The Benelux area experienced a colder than average spell up to mid-April with some days with negative temperatures that could have partially affected rapeseed at the flowering stage. The last dekad of the month showed higher temperatures than average that boosted crop development.

In the Netherlands the precipitations remained much lower than the average during the whole month. As a consequence the soil moisture reached below seasonal levels without affecting the crops at this stage. But further rainfall is required for plants that will soon reach a water demanding stage.

Belgium recorded abundant precipitations at the end of April that replenished soil moisture at a normal level.Winter wheat reached the heading stage at the end of April when winter rapeseed was flowering.Spring barley could initiate its cycle under normal conditions and maize sowing may have been hindered in Belgium due to the latest rainfalls. Most of the crops kept slight development anticipation.



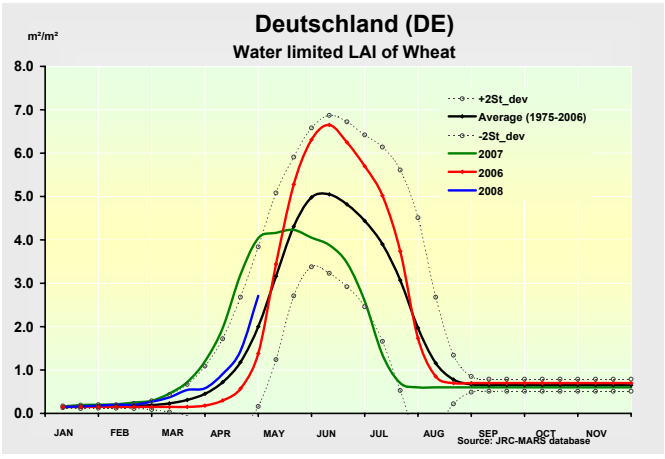


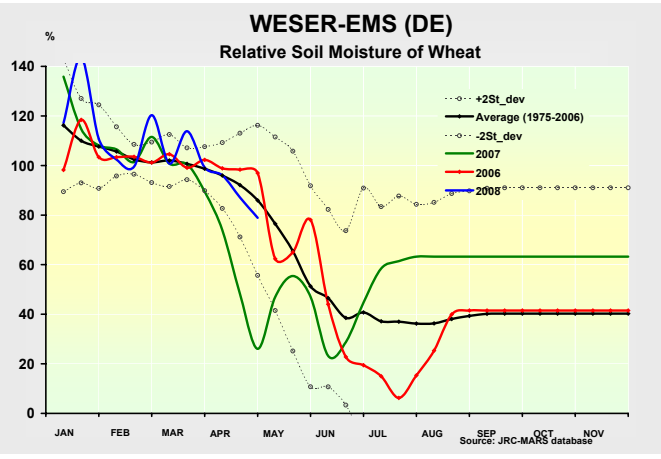
Germany: Good crop development

Cereals experienced optimal development and promise a good yield. Wheat is forecast at 7.4 t/ha, a better level than last year (+ 6.4 %) and than the average (+ 2.1 % of the five-year average). The winter barley yield is slightly progressing with 6.6 t/ha (+ 6.1 % average, + 13.3 % on 2007). Due to the large yield variation of the last harvests, the rapeseed forecast is more conservative with 3.5 t/ha, + 2.0 % of last year, – 2.3 % of the average.

As from the beginning of April, the precipitations continued to be higher than the seasonal levels by more than 30 %. Only north-western Europe (Weser Ems) was in deficit with a lower soil moisture than on average at the end of the month. After a colder spell at the end of March, the temperature reached higher than average values at the end of April. Some frost days were still recorded during the second dekad of April, particularly in the north-western region.

Winter rapeseed has grown under optimal conditions with a good biomass production. It reached a slightly anticipated flowering stage. Only the few days of late frost could have punctually interfered with crops at the sensitive flowering stage in the north-west area. Winter wheat and barley were at the heading stage at the end of April, slightly in advance with a better vegetative development than normal, promising a good yield potential. Spring barley reached the tillering stage and was growing under normal conditions. Early maize sowing could have been hindered by the abundant rainfalls.





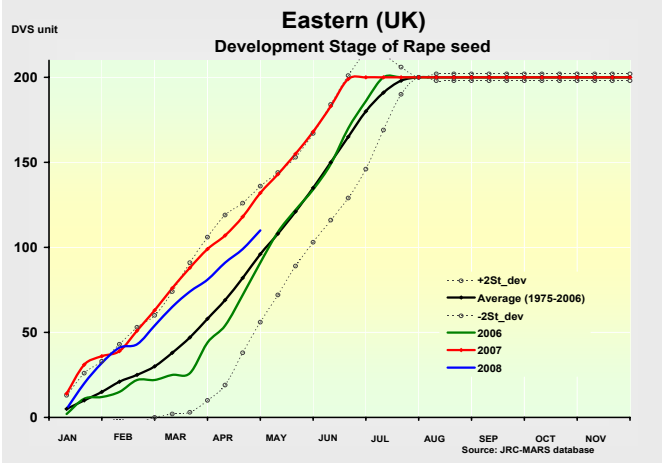
UK and Ireland: Seasonal and favourable conditions

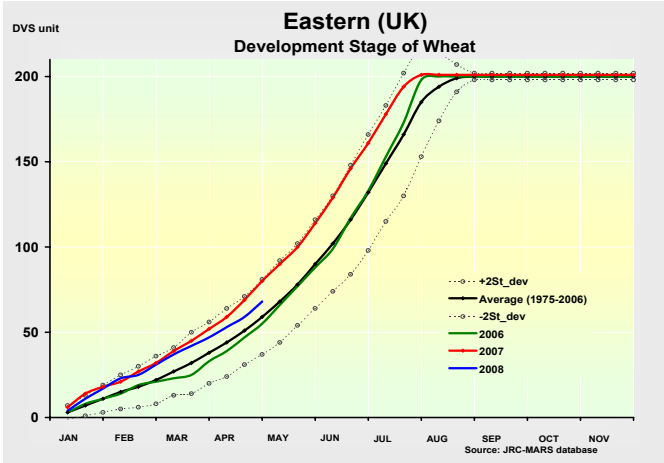
UK: The yields' forecast confirmed the previous predictions: 7.91 t/ha for soft wheat (+ 1.6 % compared with the five-year average), 6.47 t/ha for winter barley (+ 0.6 %), 3.19 t/ha for rapeseed (– 0.6 %) and 5.52 t/ha for spring barley (+ 0.9 %).

Ireland: Slight increase for soft wheat at 8.79 t/ha (– 0.4 % compared with the five-year average), and for winter barley at 7.86 t/ha (+ 0.5 %), stable for spring barley at 6.77 t/ha for (+ 2.9 %).

Again during the second and third dekads of April, large thermal fluctuations occurred, even if the values remained within the normal range of variations. Therefore, at the end of April, the cumulated active temperature showed no significant variations. In general, slightly cooler than average temperatures occurred during the second dekad, when the last spring frosts happened, whilst in the last part of the month a progressive increase of temperatures was recorded and around 27 April both minimum and maximum daily values were 5–6 °C above the seasonal averages.

The rains were quantitatively distributed according to the seasonal conditions. However, they were more persistent during the second dekad and more abundant during the last part of the month. The more seasonal thermal conditions slowed down crop development towards more average conditions.



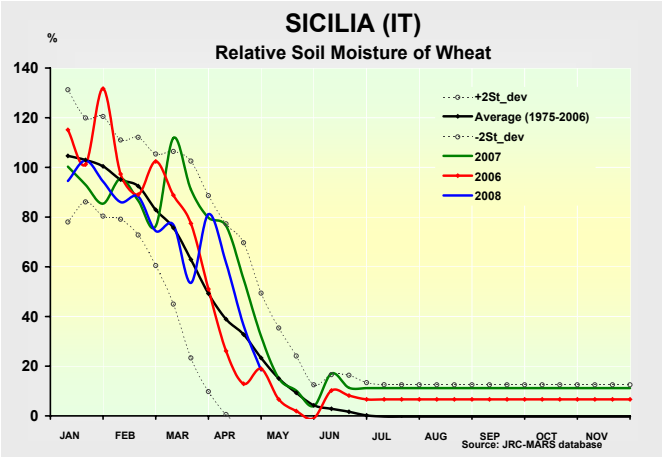


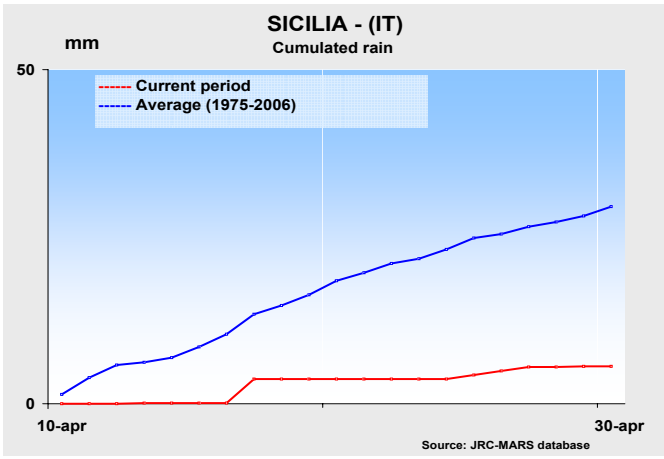
Italy: Generally good expectations except for a warning for durum wheat due to dry conditions in Sicily

The yield forecast for soft wheat is 5.03 t/ha (– 1.4 % compared with the five-year average; + 2.5 % on 2007); 2.81 t/ha for durum wheat (+ 0.9 % compared with the five-year average; + 3.4 % on 2007); 3.84 t/ha for winter barley (+ 4.9 % compared with the five-year average). For grain maize the expected yield is 9.42 t/ha (+ 8.88 % compared with the five-year average; 1.2 % on 2007).

Rainfall returned almost everywhere in Italy during March and the soil moisture conditions recovered especially in the north-western regions. The mild and wet spring favoured stem elongation for winter cereals.

The last two dekads of April were characterised by average temperature values and cumulated rainfall all over Italy. Only in Sardinia and western Sicily precipitations were scarce during the last two dekads. Currently, the relative soil moisture is decreasing. This situation could become a problem for the flowering cereals if there is no rainfall in the coming dekads. In conditions of increasing temperatures, potential evapotranspiration could cause further stress to winter cereals. Winter wheat is slowly coming into flower. Good conditions are simulated for spring barley and grain maize.



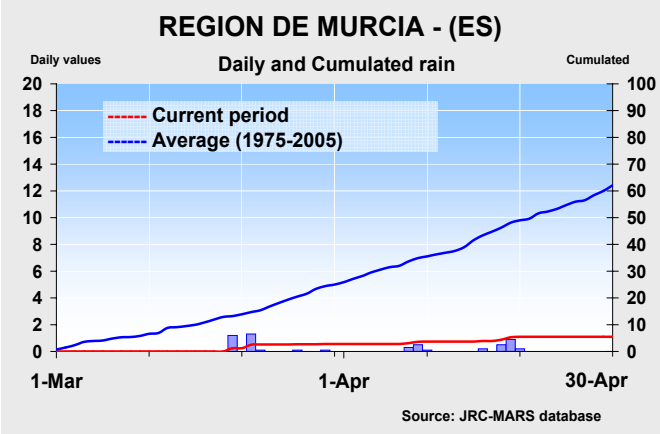


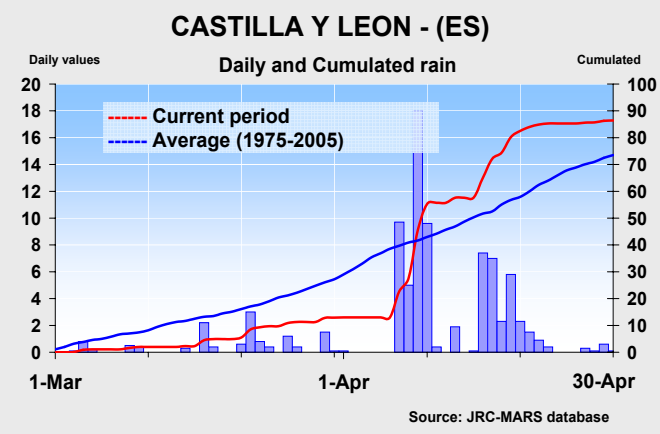
Spain: Drought persists in eastern Spain while rain and mild temperatures have benefited most crops elsewhere

The durum-wheat yield estimate is 2.4 t/ha; 5.4 % lower than last year but 6.4 % higher than the five-year average. Soft wheat yield stands around 3.3 t/ha (– 13.1 % on 2007 and + 5.8 on the five-year average). The estimate for winter barley is 2.7 t/ha (– 14.3 % on 2007 and + 2.9 % on the five-year average). The forecast for rapeseed is 1.53 t/ha, at the same level as the five-year average. The expected yield of grain maize is 10 t/ha; spring barley, although at an early stage of development, stands at around 3.3 t/ha.

Dry conditions, carried over from autumn, still affect the east of Spain, from eastern Andalusia (Granada and Almeria) to the Ebro Valley (Aragon), along the Mediterranean coast. The situation is particularly severe in the south-east (Murcia, east of Andalusia, south-east of Castile-La Mancha and Valenciana). Drought also persists in limited areas of central Spain. In most of the other regions, April rain has balanced the water deficits accumulated during the previous months.

The drought in Aragon could have a negative impact on the overall national durum-wheat production given that it is the second producing region after Andalusia. Maximum and minimum temperatures were within average levels. Particularly mild temperatures during the second half of April were of some benefit for early development phases of spring crops. However, some sowings have been delayed due to the intense April rains which affected most of western and central Spain.

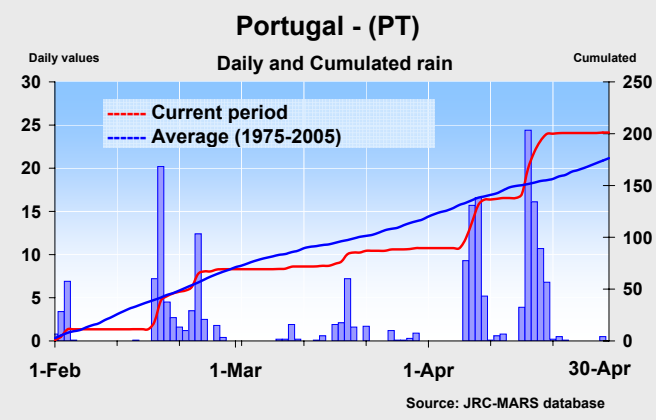


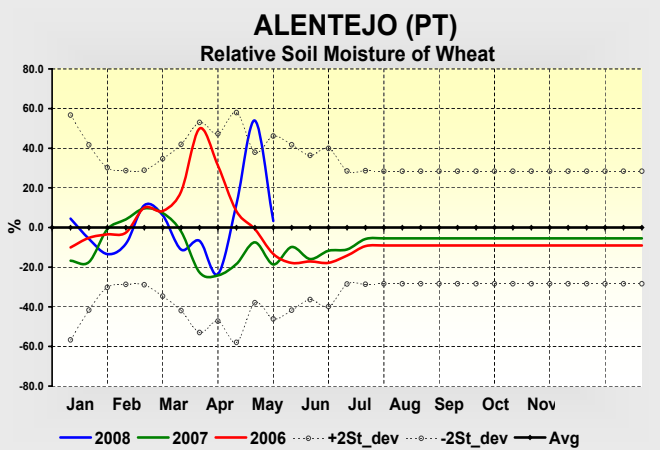


Portugal: April rains improve yield expectations

The estimate for soft wheat is in the order of 1.7 t/ha; + 4.2 % compared with the five-year average, but still significantly lower than 2007 (– 22.9 %) which was an exceptionally positive year. The same goes for winter barley, which is estimated at around 1.4 t/ha, – 7.7 % compared with the five-year average and – 22.6 % compared with the 2007 yield. Yield for grain maize is driven by the trend (5.56 t/ha).

Rain in April allowed recovery from the water deficit which Portugal had been suffering from since the beginning of the winter. Temperatures were close to the average all over the country and the expectations for most winter cereals improved regardless of two temperature peaks in April, which reached 29 °C in the south (Alentejo). The development stage of winter cereals is more advanced than the average and April rains probably have delayed the sowing of potato in the centre and north regions.

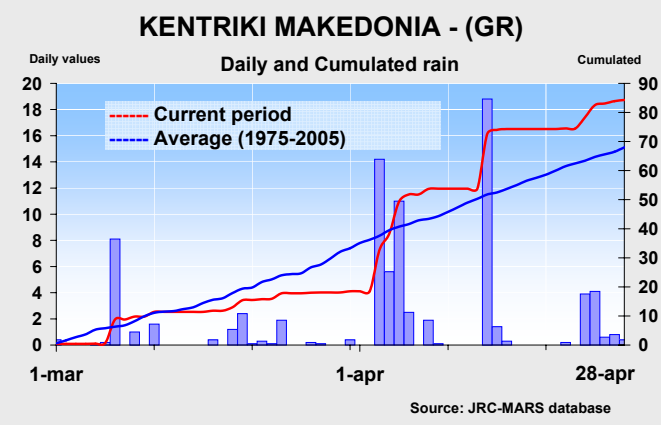


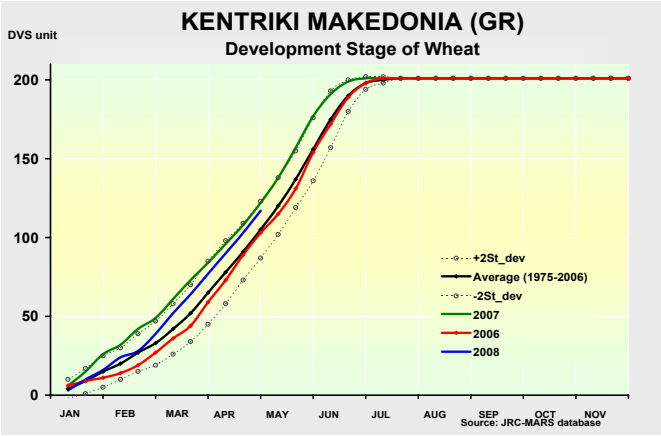


Greece: Cereal production season proceeds regularly

The agricultural season proceeds positively, characterised by sufficient precipitations and temperatures within the norm. The forecast for durum wheat is stable at 2.08 t/ha (+ 3.1 % on the five-year average), while the estimate for soft wheat is 2.75 t/ha (+ 10 % on 2007; comparable to the five-year average). The forecast for winter barley is 2.61 t/ha (+ 13 % on the five-year average). The positive seasonal start for spring crops calls for an improving forecast of 8.65 t/ha for maize (– 3.3 % on 2007).

Precipitations, which had been sufficient during March, peaked in the second dekad of April over most of the country but especially in the main winter wheat production areas of the north-east and barley production areas of the north (Kentriki Makedonia). There was also a certain recovery of a previous moisture deficit in Thessalia, with good auspices for the initial development phases of spring crops. Temperatures remained within the norm and the cycle of wheat, although slightly anticipated, proceeds positively.





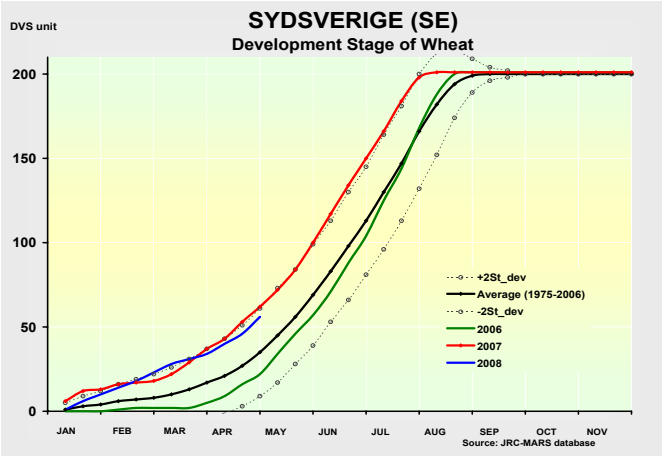
Denmark, Sweden and Finland: Progressive temperature increase kept advanced crops development

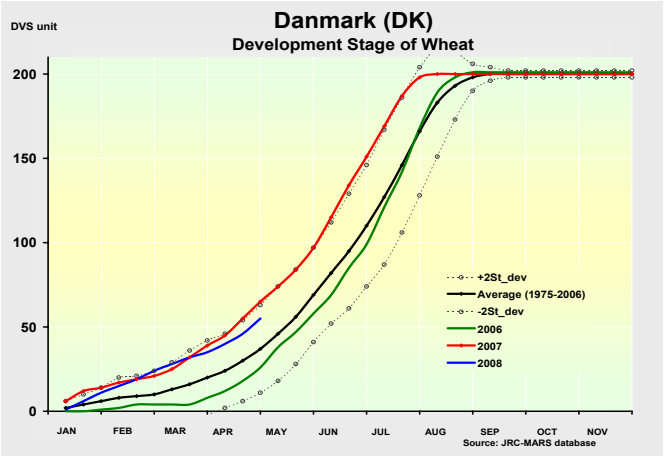
For Denmark, yield forecasts are revised at: 7.06 t/ha for soft wheat (+ 7.5 % compared with the previous year), 5.56 t/ha for winter barley (+ 10.2 %), 5.0 t/ha for spring barley (+ 3.6 %) and 3.36 t/ha for rapeseed (+ 1 %). For Sweden, yield forecasts are: 6.29 t/ha for soft wheat (+ 0.5 % compared with the previous year), 2.61 t/ha for rapeseed (+ 2.8 %), 4.27 t/ha for spring barley (– 4.03 %) and 5.43 t/ha for winter barley (+ 1.8 %). For Finland, yield forecasts are: 3.91 t/ha for soft wheat (– 0.5 % compared with the previous year), 1.41 t/ha for rapeseed (+ 11.1 %) and 3.26 t/ha for spring barley (– 12.3 %).

The month of April started with temperatures significantly higher than average. This continued also in the last two dekads, with a progressive increase of the daily values (especially in relation to the minimum temperatures). At the end of the month, the monthly cumulated active temperatures presented a large surplus: around 40–50° GDD (+ 15 %/+ 30 %) in Denmark and Sweden and 60–70° GDD (+ 60/+ 70 %) in Finland.

These thermal conditions allowed a very early start to the growing season, with the only constraint being solar radiation, which, however, was slightly above the average.

Also the amount of precipitations was very close to the seasonal limits for the period. The rain was more concentrated at the beginning and at the end of April.

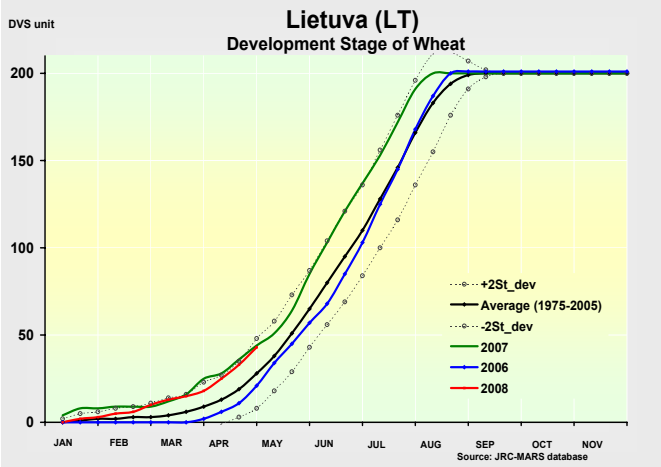


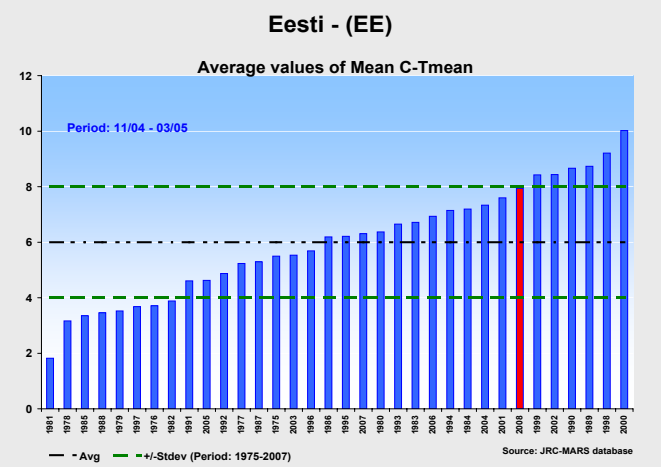


Estonia, Latvia and Lithuania: Warmer than usual

For Estonia, the forecast yields are 2.7 t/ha (– 17.5 % compared with the previous year) for soft wheat and 2.2 t/ha (– 15.8 %) for barley (total). The figures for Latvia are 3.5 t/ha (– 2.2 % on 2007) for soft wheat and 2.2 t/ha (– 7.7 %) for barley (total) and for Lithuania 3.9 t/ha (+ 0.0 %) for soft wheat and 2.7 t/ha (1.8 %) for barley (total).

The average daily temperature was above the long-term average. The cumulated precipitation was below normal level and most of it was recorded during the first week of the considered period. As a consequence, the climatic water balance is below the normal level, but for the moment this is not a reason for concern. Winter crop development remained anticipated. The sowing of spring crops was possible in the less wet days from the beginning of the period or, in some cases, were postponed for one week.

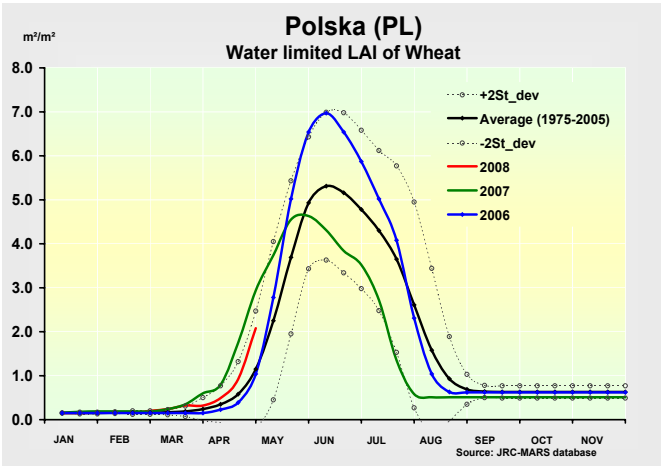


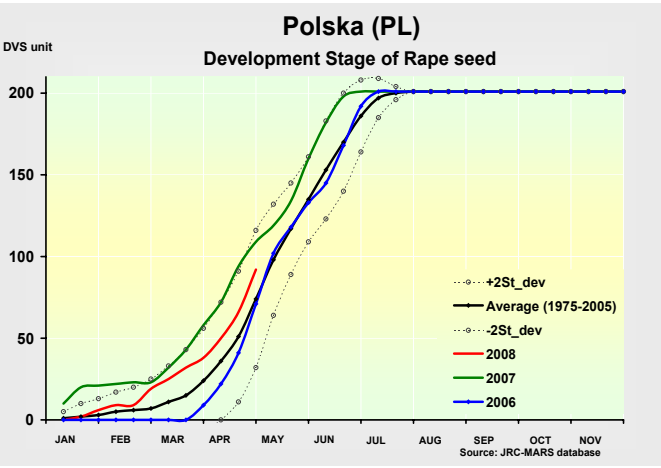


Poland: Good potential simulated for all crops

Forecasts are higher than the five-year average for all the winter crops: 3.97 t/ha for soft wheat (+ 5.6 % compared with the five-year average), 3.88 t/ha for winter barley (+ 9.5 %) and 2.81 t/ha for rapeseed (+ 9.4 %).

High temperatures and frequent rainfalls are continuing to characterise the current campaign. In some regions, the almost daily precipitations coupled with clouds have limited the irradiation levels. Winter wheat is in the first part of the stem elongation phase with more than one-dekad advance compared with the average under optimal conditions of water availability. Simulated values of leaf area index and aboveground biomass are double compared with average ones. Rapeseed will reach the mid-flowering stage in the next days with about one-week advance compared with the average. As for wheat, crop models are simulating very high values of leaf area index.



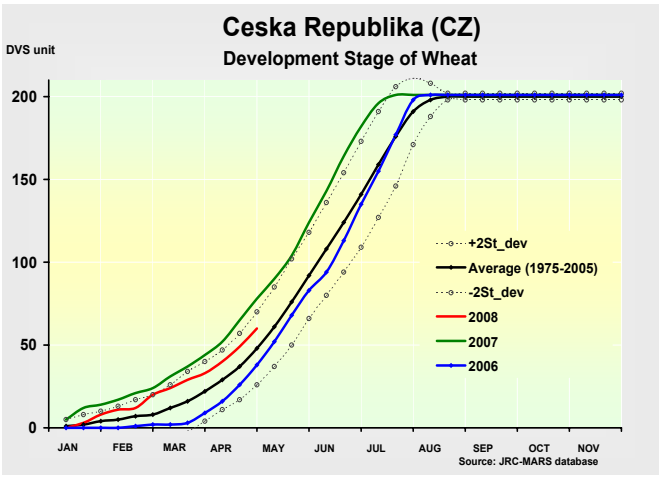


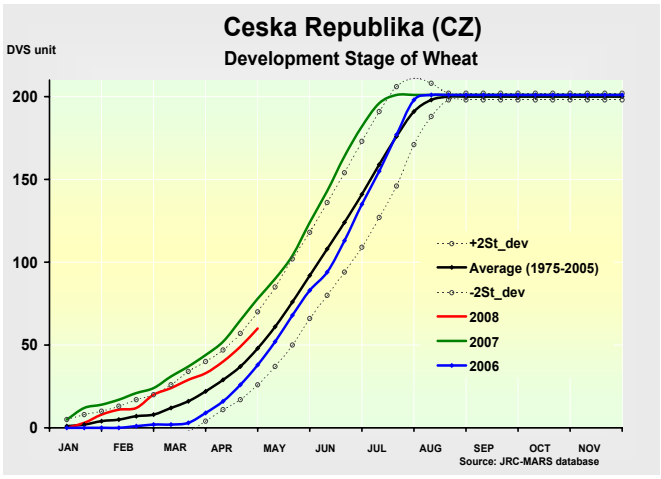
Czech Republic and Slovakia: Slight advance in development and good potential simulated

Forecasts for the Czech Republic are: 4.93 t/ha for soft wheat (+ 1.4 % compared with the five-year average), 3.10 t/ha for rapeseed (+ 9.8 %) and 4.59 t/ha for winter barley (+ 8.3 %). A good season is depicted also by the yields forecast for Slovakia: 2.38 t/ha for rapeseed (+ 16.9 % compared with the five-year average) and 3.43 t/ha for winter barley (+ 2.3 %). Only soft wheat is currently forecast to yield less than the average: 3.83 t/ha (– 3.0 %), although this figure is absolutely coherent with that recorded the last year.

The last two dekads have been characterised by average values for temperature and cumulated rainfall, although the latter is the result of quasi-daily events which have led to radiation values below the long-term average in the Czech Republic.

Winter wheat is reaching the mid-stem elongation stage with a 10-day advance compared with the average under optimal soil moisture conditions. Rapeseed is in the second part of the flowering stage with a one-week advance compared with the average. Models are simulating optimal conditions for light interception and biomass accumulation. Where the frequent rainfall events have not penalised spring barley sowings, average conditions are simulated for this crop.



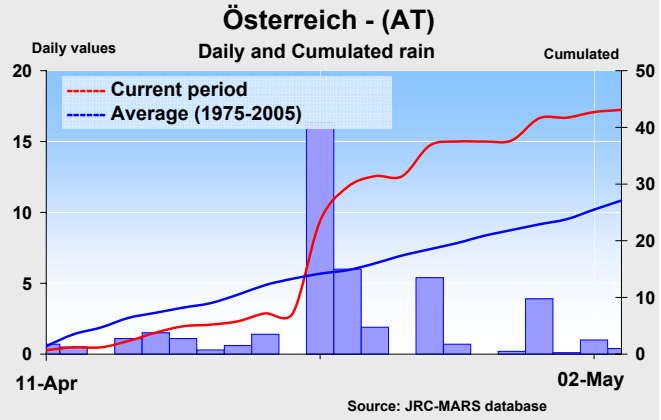


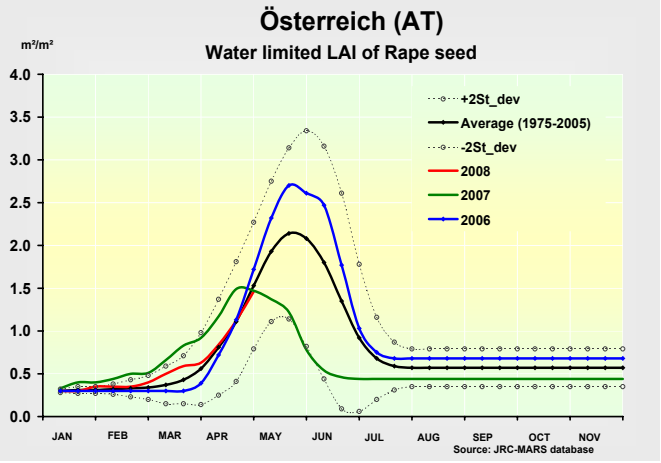
Austria: Persisting favourable conditions for all crops

The forecast yields are higher than the average for almost all the winter crops: 5.14 t/ha for soft wheat (+ 1.9 % compared with the five-year average), 5.34 t/ha for winter barley (+ 0.3 %), and 2.90 t/ha for rapeseed (+ 1.1 %). Slightly lower than the average is the yield forecast for durum wheat: 4.18 t/ha (– 1.2 %). Spring barley is forecast to yield 4.06 t/ha (+ 0.2 % compared with the average).

The warm conditions characterising the current season verified also during the last two dekads. The rainfall event recorded on 21 April contributed to maintaining the cumulated values of precipitation above the long-term average since winter crops restarted.

Winter wheat has just reached the mid-stem elongation stage, with a one-dekad advance compared with the average and under optimal conditions for soil moisture. Both simulated total biomass and leaf area index values are depicting a situation characterised by an optimal canopy development. Good conditions also exist for rapeseed, which has reached the mid-flowering stage one dekad before the average and with about half-a-month delay compared with the last year. Spring barley is completing the first part of the tillering phase — according to the average — under optimal conditions.



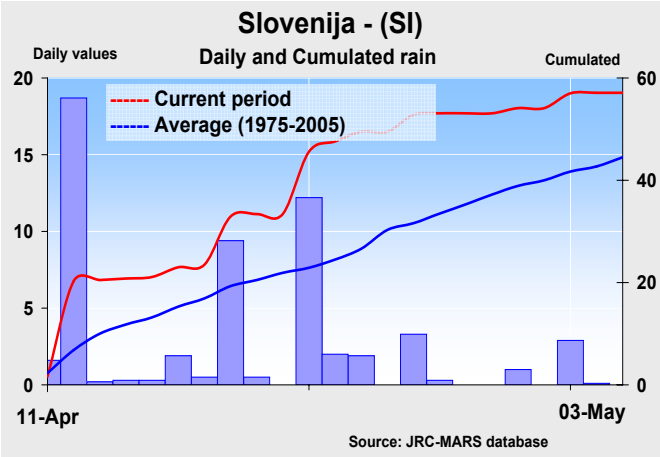


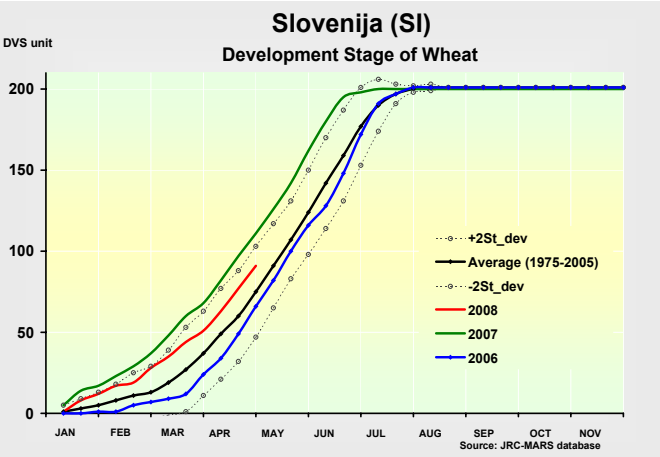
Slovenia: Persisting good conditions for winter cereals

The forecast yields are showing a good potential: 3.79 t/ha for barley (+ 5.2 % compared with the five-year average) and 4.62 t/ha for soft wheat (+ 9.7 %).

Following the trend started at the end of 2007, temperatures during the last two dekads were still above-average values. On the contrary, the relatively dry conditions which characterised the first part of the year were replaced by two dekads in which cumulated rainfall was consistently above the average. As a consequence of this cloudy period, cumulated values of solar radiation came back to values coherent with the long-term average as well as potential evapotranspiration.

Proceeding with the one-dekad advance compared with the long-term average, winter wheat entered into the first part of the flowering phase, with the exception of the northern part of the country. The one-week advance in development, simulated for rapeseed at the beginning of April, is maintained. Spring barley is completing the tillering phase in the north and starting the stem elongation phase in the south according to the average.



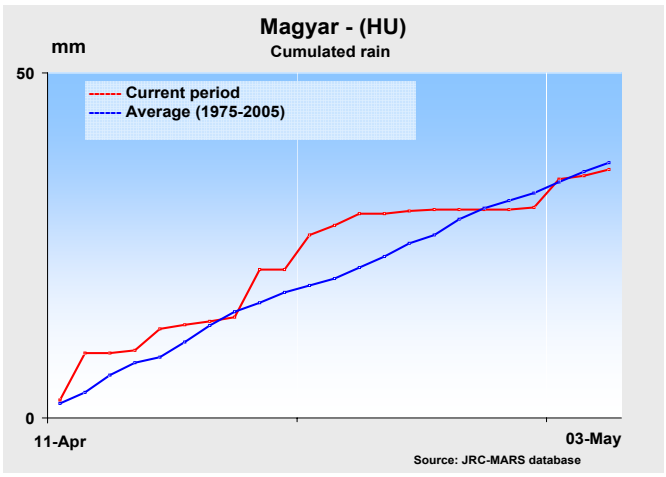


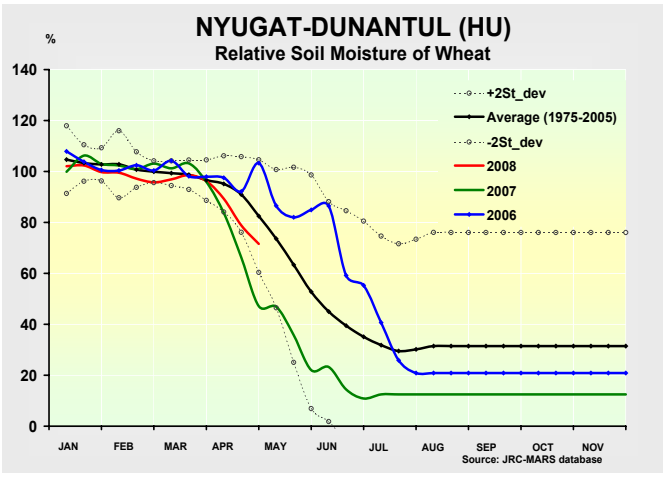
Hungary: Simulation models depict a good season for winter crops

Forecasts are 3.83 t/ha for soft wheat (+ 6.3 % compared with 2007), 2.39 t/ha for rapeseed (+ 5.7 %) and 3.90 t/ha for winter barley (+ 5.7 %).

In the last two dekads, temperatures went on being noticeably higher than the long-term average. Precipitations that occurred during the third week of April have driven cumulated rainfall values above the average especially in the southern regions. In the central and northern part of the country, the relatively dry conditions experienced in the last months are persisting. High irradiance levels, registered at the beginning of the year, were reduced to average ones in April.

Winter crops are maintaining, in the whole country, the simulated advance in development. Despite the slight increase in cumulated rainfall in the last two dekads, simulated soil water contents are falling below the long-term average, even consistently in northern and central regions. Winter wheat is in the second part of the stem elongation phase, with the exception of the southern part of the country where it is more advanced. Rapeseed is concluding the flowering phase, whereas it is starting the grain filling stage in some eastern areas. Spring barley is in the second part of the tillering phase according to the long-term average.

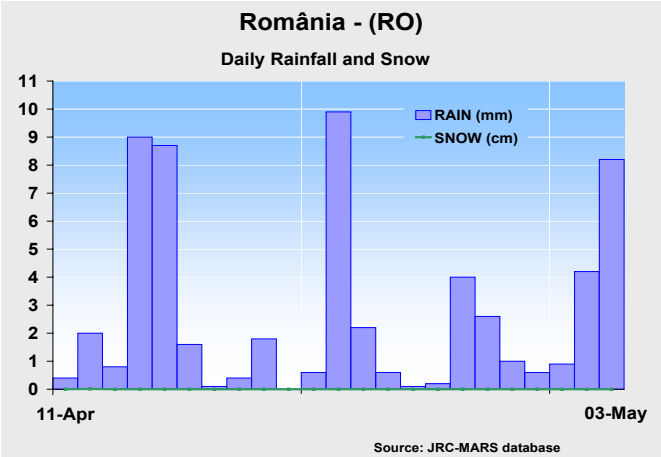


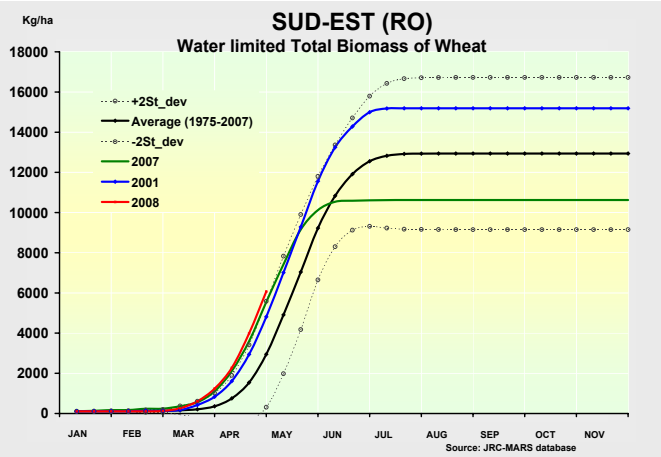


Romania: Rainy and warmer than normal

The forecast yields are: 3.0 t/ha (+ 90.9 % compared with 2007) for total wheat, 2.4 t/ha (+ 68.3 %) for barley (total) and 1.3 t/ha (+ 28.3 %) for turnips (rape).

The cumulated rain was above normal level (more than one standard deviation and the second wettest period after the record of 1975) and small amounts of precipitations were recorded for most of the days within the considered period. An exception is represented by some western areas where it was drier than usual. The average of daily mean temperature was above the long-term average. Development of winter crops and leaf area index remained anticipated and their biomass was high. The high leaf area index level is confirmed by the remote sensing data. Until now, an above-average yield seems very probable for winter wheat, but the weather conditions during grain filling may reduce this expectation. The already sown spring crops had good conditions for germination and emergence.





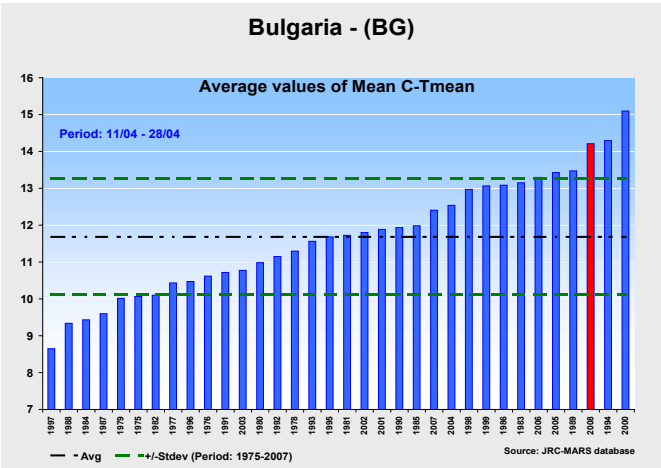
Bulgaria: High level of total biomass for winter crops

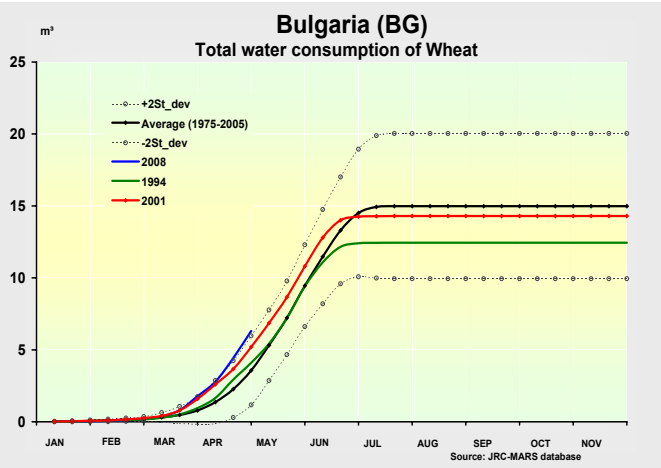
The forecast yields are: 3.2 t/ha (43.2 %) for soft wheat, 3.2 t/ha (42.1 %) for barley (total) and 2.0 t/ha (15.0 %) for rapeseed.

The 'much warmer than usual' trend of this vegetation season for winter crops continued in the considered period due to the high average of daily mean temperature (14.2 °C), the third highest within the last 33 years, after 2000 and 1994. The minimum temperature during this considered period was + 5 °C. The cumulated rainfall was at the long-term level. Global solar radiation and climatic water balance were only slightly below normal.

For winter crops the development is anticipated (one standard deviation above the long-term average), soil moisture is at a normal level, the leaf area index and the total biomass are very high.

There were enough dry days to allow for a late sowing of spring crops in areas where farmers could not take advantage of the good weather during the canonical sowing period.



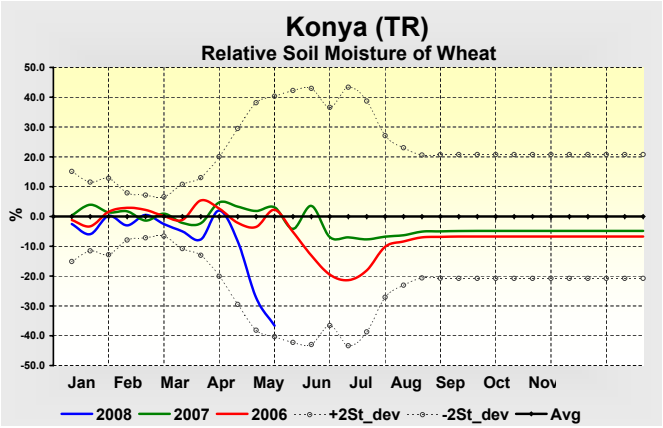


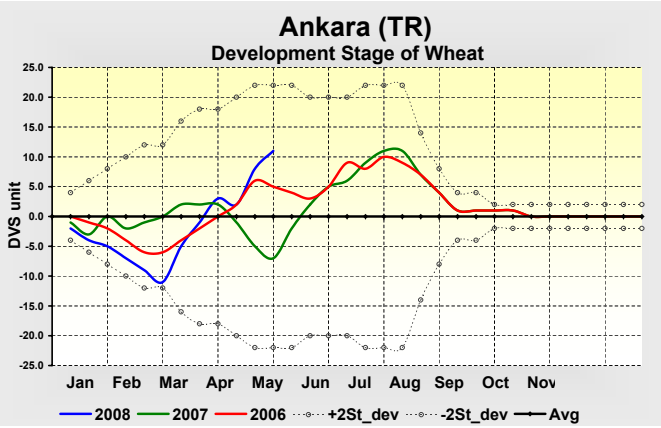
2.2. BLACK SEA AREA

Turkey: Drought may affect main cereal production areas

Dry conditions are starting to reduce the expected yields of winter cereals. The updated forecast for wheat is 2.21 t/ha (– 2.2 % on the five-year average). Barley is now forecast at 2.56 t/ha, still + 1.2 % on the five-year average. Maize, at the beginning of its productive cycle, is forecast for 6.32/ha, in line with its long-term trend.

The dry conditions that had affected the Mediterranean coastal regions of Turkey during March are now moving inland and have started to influence the central highlands. Precipitations have been virtually absent since the first dekad of April in the heart of the cereal production area of the Konya and Ankara districts. The cumulated rainfall in April was around 25 mm with a drop of over 30 % on LTA and of over 20 % with respect to 2007. During the same period, temperatures exceeded 30 °C at times, well above the seasonal average, affecting wheat and barley in the very delicate phases of heading and flowering. Still the present conditions appear not to have significantly affected winter cereals. All things considered, development appears to proceed normally, although slightly in advance of the average. However, if the drought persists it could hamper the whole production season. Weather has been more favourable in the north-west and in the Phosphorus regions. Cumulated rainfall exceeded 60 mm in the region of Bati Marmara, which, combined with good radiation and moderate temperatures, is favouring the early development phases of grain maize.

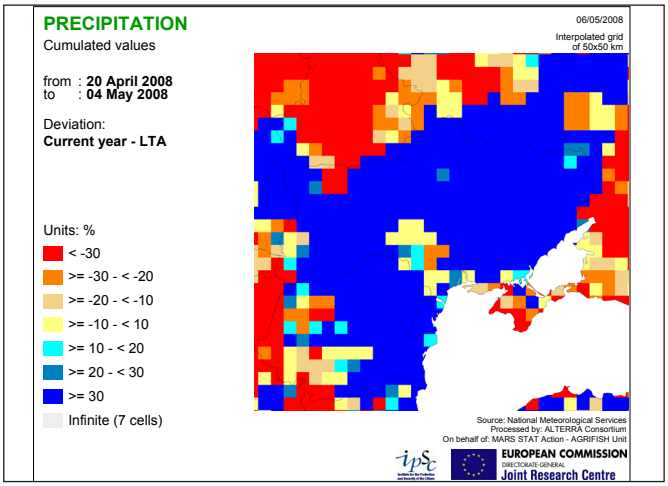


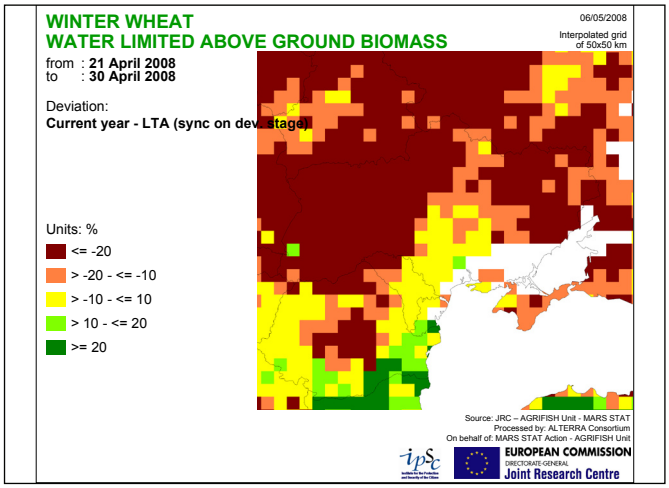


Ukraine: Some beneficial rains

The forecast yields are: 3.0 t/ha for wheat, 2.0 t/ha for barley and 1.2 t/ha for oil seed rape.

During the considered period some rain events stopped the decrease of soil moisture in most of the country. A previous area of concern (due to the poor water balance for November to mid-April) is now reduced to some areas around the western border with Moldova (northern part of Odes'ka *oblast*). The thermal conditions were close to normal. The development stage of winter crops is anticipating and the simulated absolute values for water limited biomass are very high, but, when a synchronisation with the development stage is applied, large areas appear to be, with – 20 %, lower than normal. The future of winter crops is still depending on the evolution of water balance and the weather conditions during grain filling but the expectation for above-average yields remains justified.





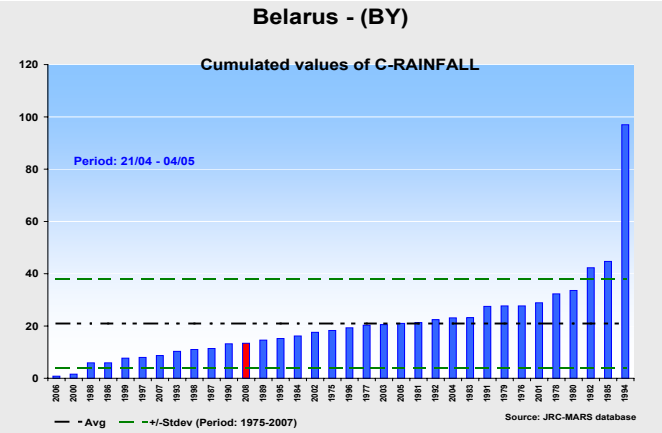
2.3. EASTERN AREA

Belarus: Anticipated development of winter crops

The forecast yield for wheat is 2.7 t/ha.

The average of daily mean temperature for the considered period was slightly above the long-term average; meanwhile the cumulated rain was below this level. The development of winter cereals is anticipated (for winter wheat it was two standard deviations above the long-term average for the end of April) and simulated biomass and total water consumption were very high.

In large areas, the sowing of spring crops was possible under relatively dry conditions.



Russia: Favourable conditions for winter crops and for spring crop sowing

The last two dekads of April were warmer than normal, also when compared with the previous year everywhere except the northernmost regions of European Russia. In some regions the air temperature was higher by 5 to 10 °C than in the previous year. Simultaneously the amount of precipitation was close to normal or slightly higher, especially in the central Chernozemic region. Less than normal precipitation was observed in northern-west region of Russia.

In general, agrometeorological conditions were favourable for winter crop development. The CGMS simulation of wheat growth demonstrates better crop status at the end of April 2008 than in the previous year.

The spring crop sowing campaign is likely to be finished earlier than in the previous season due to warmer conditions during April.

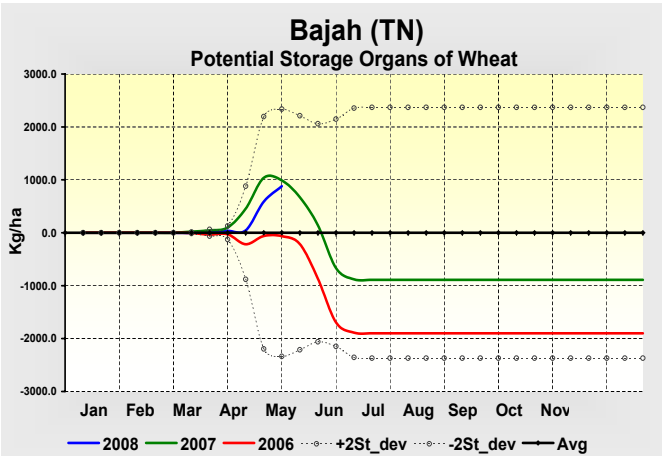
2.4. MAGHREB

Maghreb: Worsening drought in Morocco contrasts with a positive situation in Algeria and Tunisia

The yield forecast for wheat in Morocco is 0.95 t/ha (– 34 % on the five-year average). Barley is estimated at 0.6 t/ha, worsening in comparison with 2007 and with the five-year average (– 28 %). Maize forecast is at the moment expected to follow the long-term trend and yield 0.64 t/ha. In Algeria, wheat and barley forecasts remain stable at 1.29 t/ha and 1.46 t/ha respectively. In Tunisia wheat forecast is 1.71 t/ha, which is substantially stable on the previous estimates (– 2.3 % on the five-year average); same for barley at 0.94 t/ha (+ 2.2 % on the five-year average).

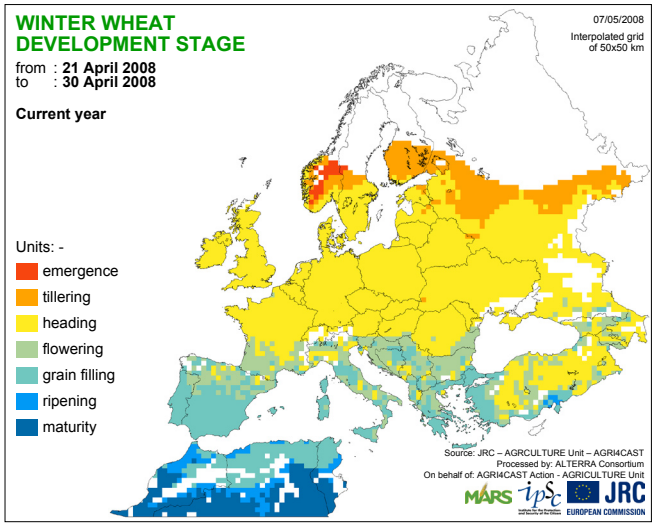
In the western Maghreb, conditions appear to be quite dry, especially in the main wheat production areas of Morocco (Tensift and centre). Wheat is reaching maturity almost one dekad in advance with respect to the norm and also with respect to 2007, which was also particularly dry. Overall conditions worsened significantly in the third dekad of April and vegetation development showed a marked drop which is manifested in the NDVI graph. There were recent rains in the northern regions of Morocco which only partially made up for the accumulated deficit. Maize cultivation is, for the most part, under irrigation and should not be affected by the current trends. Overall the situation appears conducive to another problem year, possibly even worse than 2007.

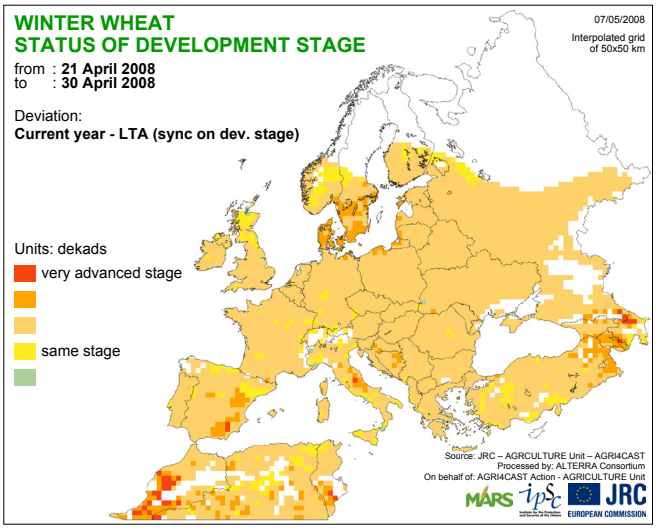
Dry conditions in the west of Algeria did not affect the main wheat production areas in the eastern coastal region of Oum el Bouaghi. The positive trend that began in early spring continued through April, which was characterised by precipitation events coinciding with the final development stages of winter cereal. In Tunisia also, the winter cereal production areas in the north and north-east benefited from sufficient rain in April. These, coupled with relatively high temperatures, should favour photosynthesis and biomass accumulation.

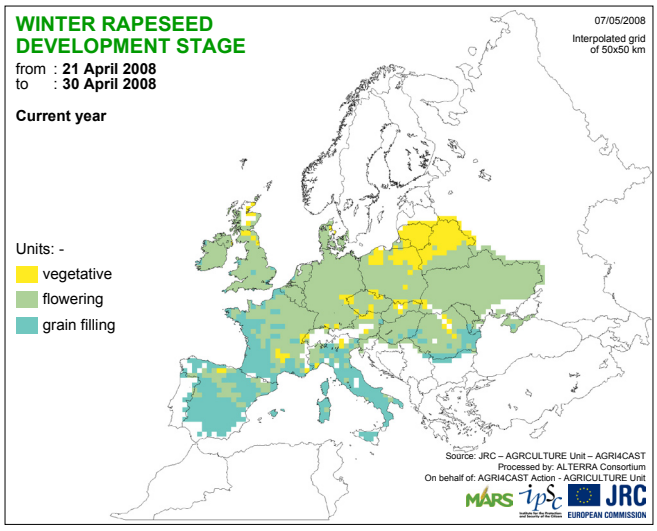


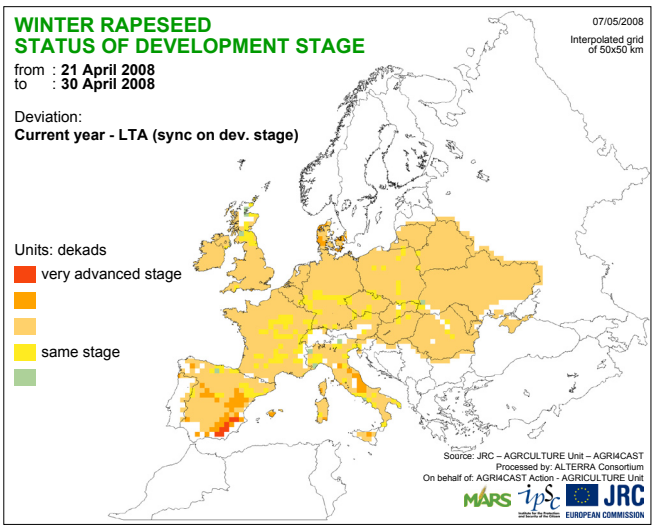
3. Maps analysis

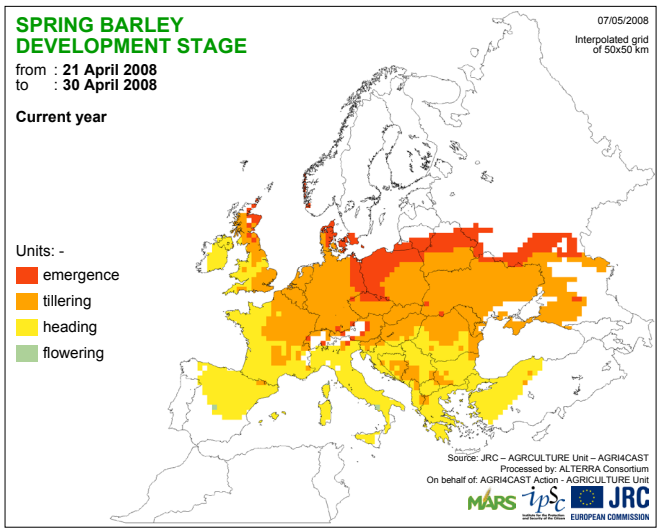
3.1 Crop development stage

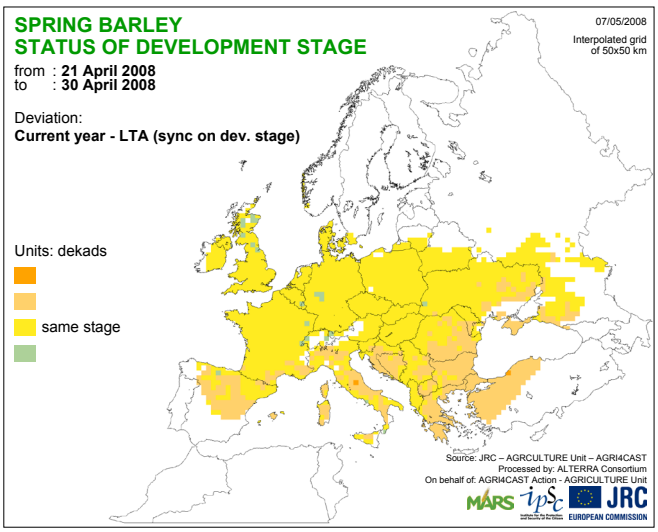




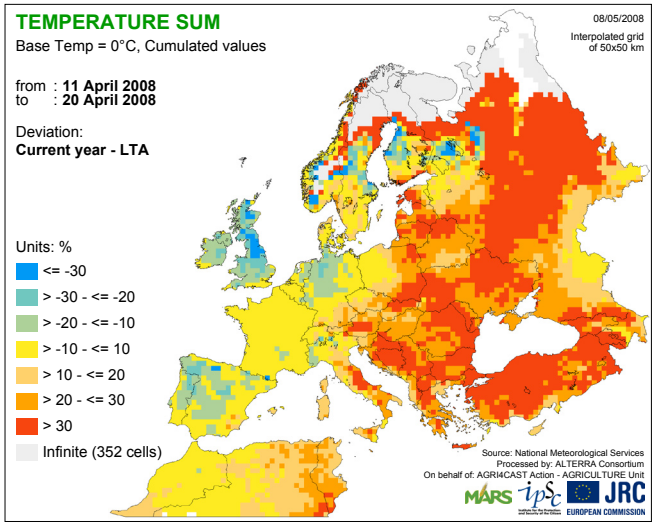


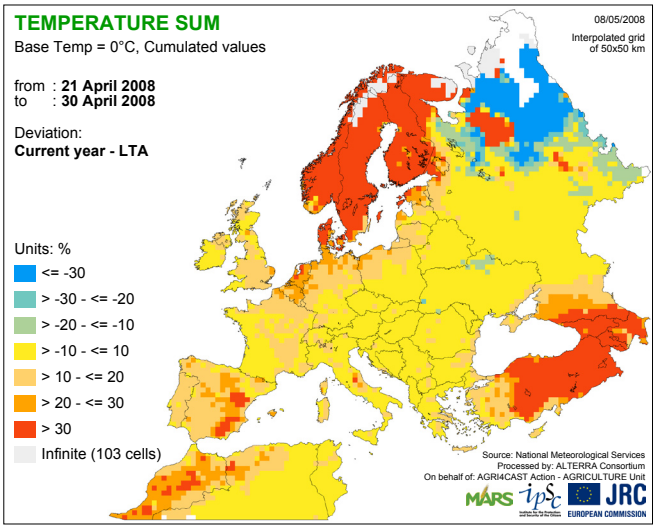


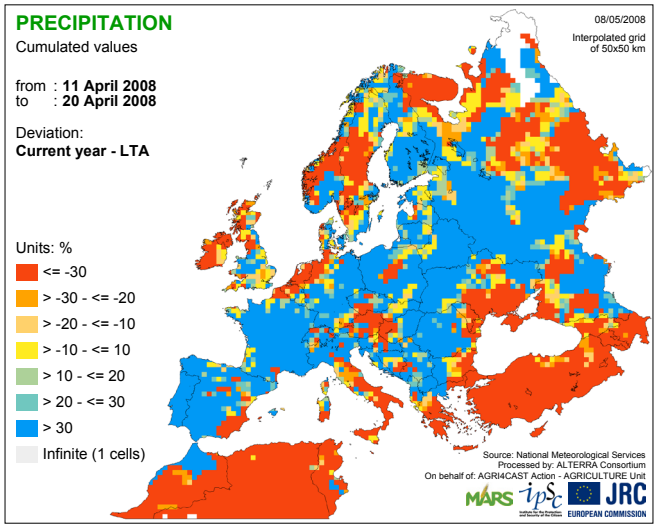


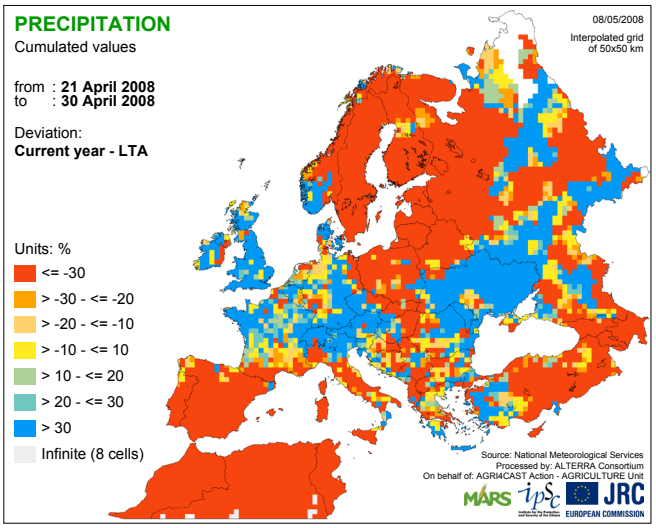


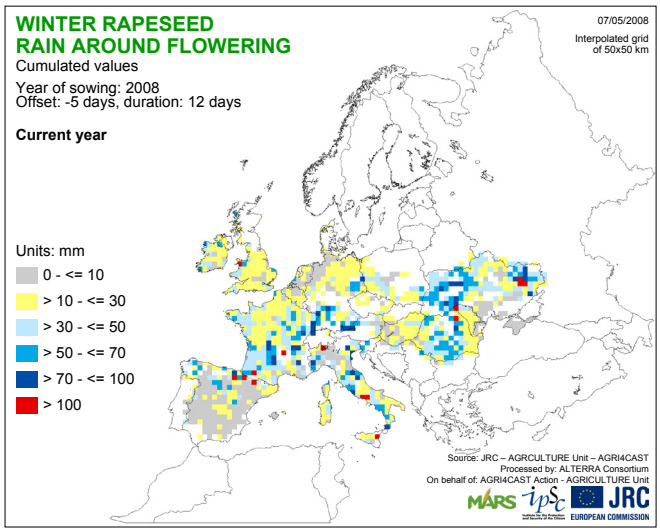
3.2 Temperature and precipitations

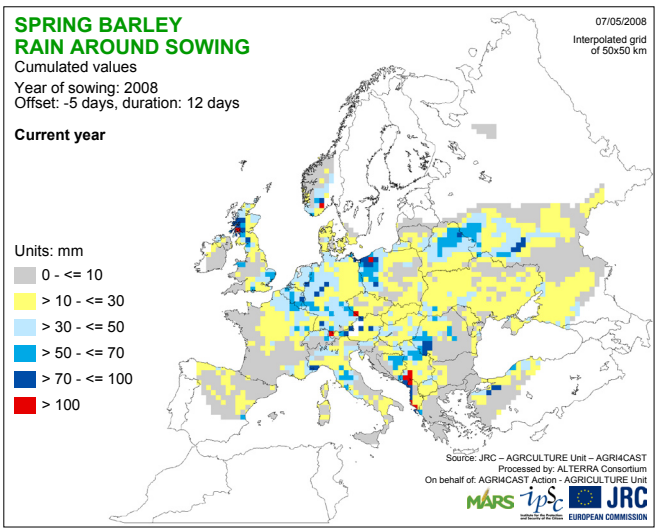






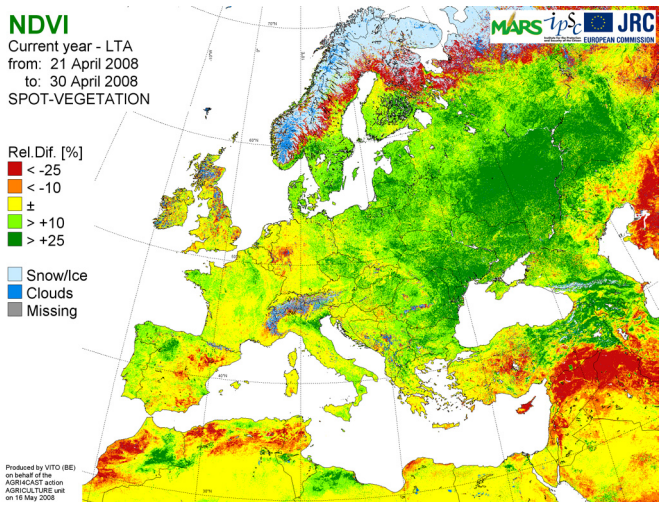






4. Satellite analysis — SPOT vegetation

Normal to good NDVI profiles for most of Europe



The normalised difference vegetation index (**NDVI) map** shows relative differences between current NDVI in 2008 and the long-term average (1998–2006) for the last dekad of April. For most of western Europe, NDVI exhibits normal values around the long-term average. Slightly higher positive NDVI differences are visible in extensive parts of eastern Europe. The favourable situation at the beginning of the growth has been established during April for some of the countries bordering the Black Sea (e.g. Romania). Countries adjacent to the western Mediterranean coastline (Spain, Maghreb countries) are below average. In particular, the situation for Morocco is degenerating due to missing precipitations.

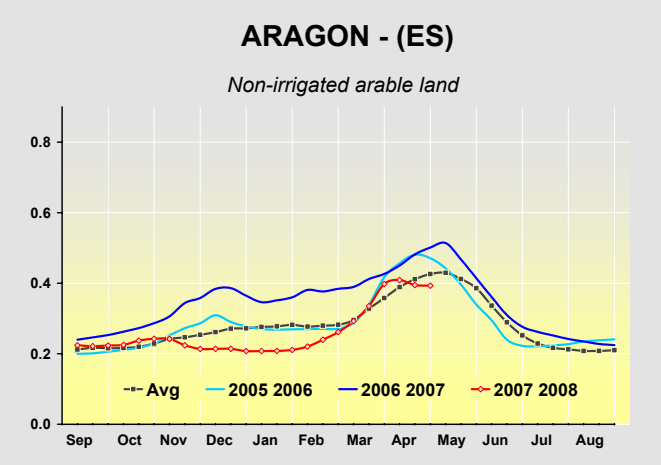
The **NDVI profiles** of non-irrigated arable land in western Europe show normal to good values compared with the average. **Spain** and **Portugal** reside around the maximum of the NDVI with values slightly above the average (see the Alentejo profile). The profile for **Aragon** shows an anticipated climax above the average and an anticipated decrease of the profile early in the season, thus potentially diminishing yield expectations. The same applies to Castile-La Mancha but is less articulated. Similar to the Iberian peninsula, the NDVI of southern **Italy** ranges around the maximum in the profiles. In Sardinia and partly in Sicilia, the NDVI dropped close to the average due to recent drought periods (see Sardinia profile). However, the north is, before the maximum, still accumulating biomass. According to the NDVI the first part of the growing period allows good expectations and in the case of Emilia-Romagna even values clearly above the average and the previous years (see profile).

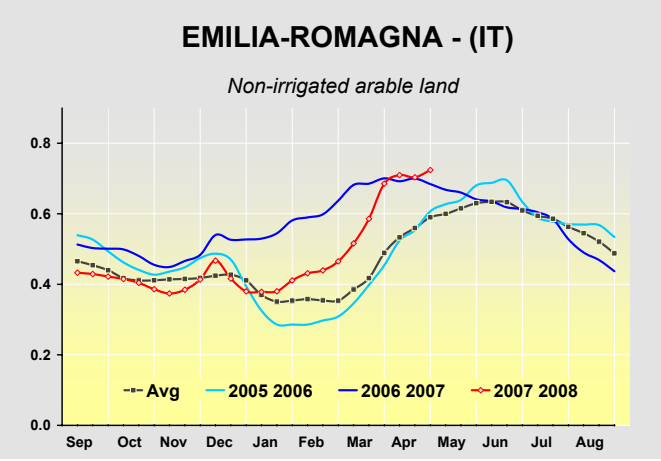
The steep vegetation boost from early March onwards in **Greece** is accompanied by an early maximum with NDVI values around the average (see Anatoliki Makedonia Thraki). The further development still allows normal yield expectations.

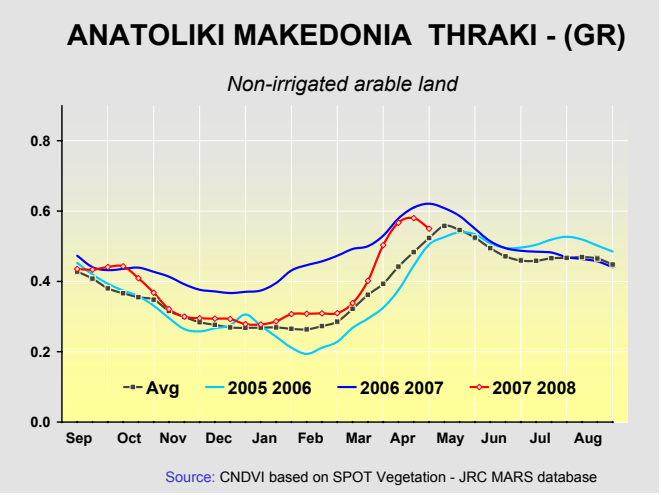
For the **Maghreb** countries, the situation is twofold. In Morocco the profiles exhibit a well-developed maximum with a sharp drop of the NDVI signal leading to a shorter than usual crop cycle (see centre). On the other hand, the profiles in Tunisia display NDVI slightly better than the average throughout the whole season (see Banzart), suggesting good yield expectations.

The favourable temperature and rain conditions in April in **France** established slightly anticipated growing (see centre profile). In **Germany**, a slightly earlier start than average is displayed and a good yield potential afterwards as shown in the Nordost Brandenburg profile. The current NDVI values, which are below average as indicated by the NDVI map in southern Niedersachsen and northern North Rhine-Westphalia, are mainly due to clouds.

The positive development in wide parts of eastern Europe is still continuing throughout the last two dekads. It is mainly documented in the profile of **Romania**, which shows an anticipated start followed by an increase of the current NDVI that remains above the average and the previous years (see also south-east). The profile still allows full potential yield.







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